

AMENDMENTS TO THE CLAIMS

The claims in this listing will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A method for multi-reading a plurality of IDs, ~~wherein an~~  
~~by which an~~ interrogator and multiple transponders repeat queries and responses there-  
between in order ~~that to allow~~ the interrogator ~~to discriminate~~ ~~discriminates a~~ unique ID  
given to each one of the transponders[[:]], ~~the method comprising:~~  
~~specifying, by the interrogator, a first read range of IDs in a first query; and~~  
~~if the interrogator does not receive a response to the first query, or receives only a~~  
~~single response to the first query, transmitting, by the interrogator, a second query~~  
~~specifying a second read range of IDs which is twice the size of the first read range of IDs~~  
~~and~~  
~~wherein said interrogator when querying specifies a read range of IDs and permits~~  
~~a response from only the transponders whose IDs are within said read range.~~

2. (Currently Amended) The method for multi-reading a plurality of IDs as  
described in claim 1, ~~wherein said transponders when responding return their IDs,~~  
~~comprising the steps of further comprising:~~
  - 1) ~~when there is a plurality of responses to the query of said interrogator, reducing~~  
~~the size of said read range by half in the subsequent query;~~
  - 2) ~~when there is a single response to the query of said interrogator, reading out ID-~~  
~~of the transponder which responded as well as shifting said read range to the~~

following rank in the subsequent query; and further when there is a single response or no response to the previous query, expanding the size of said read range d twice; and

3) when there is no response to the query of said interrogator, shifting said read range to the following rank in the subsequent query; and further when there is a single response or no response to the previous query, expanding the size of said read range d twice;

whereby the above mentioned steps are repeated until searching of all the read ranges in which IDs to be read may exist is completed

responding, by a transponder, with an ID of the transponder, if the transponder has an ID within the first read range of IDs;

transmitting, by the interrogator, a second query specifying a second read range of IDs which is half the size of the first read range of IDs, if the interrogator receives a plurality of responses to the first query;

reading an ID of a responding transponder, if the interrogator receives a single response to the first query; and

transmitting, by the interrogator, a second query specifying a second read range of IDs having a starting ID differing from a starting ID of the first read range of IDs, if the interrogator does not receive a response to the first query or receives only a single response to the first query,

wherein the method is repeated until a search for all possibly existing IDs has been completed.

3. (Currently Amended) The method for multi-reading a plurality of IDs as described in claim [[1]] 14, further comprising wherein said transponders when responding returns only response signals, comprising the steps of:

1) when there is a response/responses from said transponders to the query of said interrogator, and

1.1) when the size of said read range d is not equal to 1, reducing the size of said read range d by half in the subsequent query;

1.2) when the size of said read range d is equal to 1, reading out ID of the transponder which responded as well as shifting said read range to the following rank in the subsequent query; and further when there is a response/responses to the previous query and the size of said read range d is equal to 1 or when there is no response, expanding the size of said read range d twice; and

2) when there is no response from said transponders to the query of said interrogator, shifting said read range to the following rank in the subsequent query; and further when there is a response/responses to the previous query and the size of said read range d is equal to 1 or when there is no response, expanding the size of said read range d twice;

whereby the above-mentioned steps are repeated until searching of all the read ranges in which IDs to be read may exist is completed

responding, by a transponder, if the transponder has an ID within the first read range of IDs;

transmitting, by the interrogator, a second query specifying a second read range of IDs which is half the size of the first read range of IDs, if the interrogator receives a response to the first query and the first read range of IDs comprises more than a single ID;

reading an ID of a responding transponder, if the first read range of IDs comprises a single ID; and

transmitting, by the interrogator, a second query specifying a second read range of IDs having a starting ID differing from a starting ID of the first read range of IDs, if the interrogator does not receive a response to the first query, or if the interrogator receives a response to the first query and the first read range comprises a single ID,

wherein the method is repeated until a search for all possibly existing IDs has been completed.

4. (Currently Amended) The method for multi-reading a plurality of IDs as described in claim 2, wherein the size sizes of said read range d is the first and second read ranges are defined by powers of two, and the first and second read ranges are specified by one of a start value and an end value, and an exponent value which sets a size of a read range of IDs  $2^e$ , i.e. the power of 2, and said read range d is specified by an integer value of either the start S or the end E of said read range d and exponent e of said read range d.

5. (Currently Amended) The method for multi-reading a plurality of IDs as described in claim 4, wherein a reduction of a size of a read range of IDs is performed by reducing the exponent value the reduction value  $(d/2)$  of the size of said read range d is calculated by exponential function,  $e=e-1$ .

6. (Currently Amended) The method for multi-reading a plurality of IDs as described in claim 4, wherein an expansion of a read range of IDs is performed by

increasing the exponent value the expansion-value ( $2 \times d$ ) of the size of said read range  $d$  is calculated by exponential function,  $e = e + 1$ .

7. (Currently Amended) The method for multi-reading a plurality of IDs as described in claim 4, wherein the an end value E of said a read range is calculated by the formula  $E = S + 2^e - 1$  when said the read range is specified by the a start value S of said the read range and the an exponent value e.

8. (Currently Amended) The method for multi-reading a plurality of IDs as described in claim 4, wherein the a start value S of said a read range is calculated by the formula  $S = E - 2^e + 1$ , when said the read range is specified by the an end value E of said the read range and the an exponent value e.

9. (Currently Amended) The method for multi-reading a plurality of IDs as described in claim 3, wherein the size sizes of said read range d is the first and second read ranges are defined by powers of two, and the first and second read ranges are specified by one of a start value and an end value, and an exponent value which sets a size of a read range of IDs  $2^e$ , i.e. the power of 2, and said read range d is specified by an integer value of either the start S or the end E of said read range d and exponent e of said read range d.

10. (Currently Amended) The method for multi-reading a plurality of IDs as described in claim 9, wherein a reduction of a size of a read range of IDs is performed by

~~reducing the exponent value the reduction value  $(d/2)$  of the size of said read range  $d$  is calculated by exponential function,  $e=e-1$ .~~

11. (Currently Amended) The method for multi-reading a plurality of IDs as described in claim 9, wherein an expansion of a read range of IDs is performed by increasing the exponent value the expansion value  $(2 \times d)$  of the size of said read range  $d$  is calculated by exponential function,  $e=e+1$ .

12. (Currently Amended) The method for multi-reading a plurality of IDs as described in claim 9, wherein the an end value  $E$  of said a read range is calculated by the formula  $E=S+2^e-1$  when said the read range is specified by the a start value  $S$  of said the read range and the an exponent value  $e$ .

13. (Currently Amended) The method for multi-reading a plurality of IDs as described in claim 9, wherein the a start value  $S$  of said a read range is calculated by the formula  $S=E-2^e+1$ , when said the read range is specified by the an end value  $E$  of said the read range and the an exponent value  $e$ .

14. (New) A method for multi-reading a plurality of IDs, by which an interrogator and multiple transponders repeat queries and responses there-between in order to allow the interrogator to discriminate a unique ID given to each one of the transponders, the method comprising:

specifying, by the interrogator, a first read range of IDs in a first query; and

if the interrogator does not receive a response to the first query, or if the interrogator receives a response to the first query and the first read range comprises a single ID, transmitting, by the interrogator, a second query specifying a second read range of IDs which is twice the size of the first read range of IDs.